

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
7 October 2004 (07.10.2004)

PCT

(10) International Publication Number
WO 2004/085253 A3

(51) International Patent Classification?: **B29C 65/02,**
B65B 51/22, 57/00

(21) International Application Number:
PCT/EP2004/050385

(22) International Filing Date: 26 March 2004 (26.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
TO2003A000238 28 March 2003 (28.03.2003) IT

(71) Applicant (for all designated States except US): **TETRA
LAVAL HOLDINGS & FINANCE SA** [CH/CH]; Avenue
Général-Guisan, 70, CH-1009 Pully (CH).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FERRARI, Clau-
dio** [IT/IT]; Via A. Manzoni, 7, I-41042 Fiorano Mode-
nese (IT). **MELANDRI, Antonio** [IT/IT]; Via Picasso, 2/1,
I-42048 Rubiera (IT). **JAVED, Saquib** [PK/IT]; Via della
Vite, 38, I-41100 Modena (IT). **GALAVOTTI, Giorgio**
[IT/IT]; Via Gramsci, 61/B, I-41032 Concordia (IT).

(74) Agents: **JORIO, Paolo** et al.; Studio Torta S.r.l., Via
Viotti, 9, I-10121 Torino (IT).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,
GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

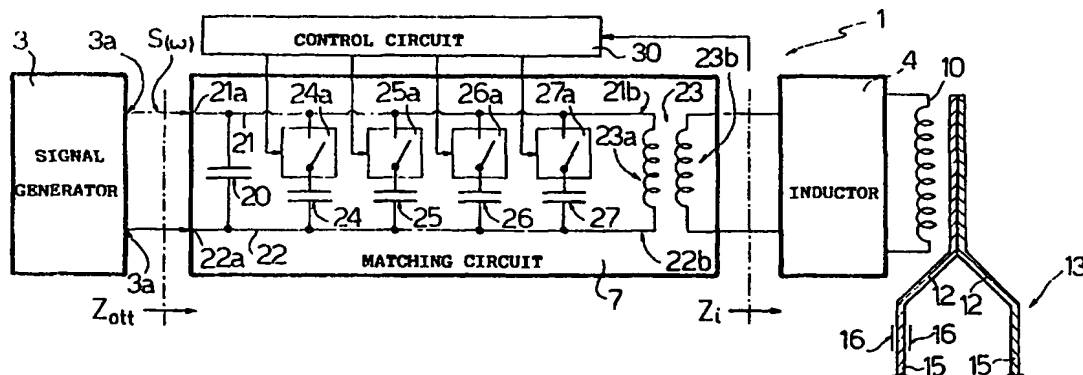
Published:

— with international search report

(88) Date of publication of the international search report:
10 March 2005

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: INDUCTION SEALING DEVICE AND CORRESPONDING METHOD FOR PRODUCING PACKAGES OF
POURABLE FOOD PRODUCT



(57) Abstract: An induction sealing device which may be used for producing packages of pourable food products by transversely sealing a tube (13) of sheet packaging material having at least one layer (12) of induction-heatable material covered with plastic material (16). The sealing device has: a generator (3) for generating an alternating power signal $S(\omega)$; an inductor (4) receiving the alternating power signal $S(\omega)$ to induce a parasitic electric current in the layer (12) and locally melt the plastic material (16) to form a transverse seal; and a matching circuit (7) for achieving optimum power transfer between the generator (3) and the inductor (4). The matching circuit (7) includes an inductive-capacitive circuit, in which the capacitance of a variable-capacitance capacitive element (20, 24, 25, 26, 27) is adjustable so that the current-voltage phase angle is close to zero.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/050385

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B29C65/02 B65B51/22 B65B57/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B29C B65B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 99/52776 A (TETRA LAVAL HOLDINGS & FINANCE ; TYLLERED OLOF (IT); MELANDRI ANTONIO) 21 October 1999 (1999-10-21) the whole document -----	1-10

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

14 July 2004

Date of mailing of the international search report

22/07/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel (+31-70) 340-2040, Tx. 31 851 epo nl,
Fax (+31-70) 340-3018

Authorized officer

Dupuis, J-L

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern

ion No

PCT/EP2004/050385

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9952776	A	21-10-1999	EP 0950608 A1	20-10-1999
			AT 255035 T	15-12-2003
			AU 3606199 A	01-11-1999
			DE 69820028 D1	08-01-2004
			DK 950608 T3	22-03-2004
			WO 9952776 A1	21-10-1999
			ES 2209098 T3	16-06-2004
			JP 2002511367 T	16-04-2002
			TW 408078 B	11-10-2000
			US 6732496 B1	11-05-2004
